

## WORLD INTELLECTUAL PROPERTY ORGANIZATION International Bureau



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 5:

C11D 1/52, 3/386

(11) International Publication Number: WO 92/06154

(43) International Publication Date: 16 April 1992 (16.04.92)

(21) International Application Number: PCT/US91/07028

(22) International Filing Date: 25 September 1991 (25.09.91)

(71) Applicant: THE PROCTER & GAMBLE COMPANY [US/US]; One Procter & Gamble Plaza, Cincinnati, OH 45202 (US).

(72) Inventors: MAO, Mark, Hsiang-Kuen; 4114 Fox Hollow Drive, Cincinnati, OH 45241 (US). COOK, Thomas, Edward; 4760 Chapel Ridge Drive, Cincinnati, OH 45223 (US). PANANDIKER, Rajan, Keshav; 1321 Williamsburg Road, Cincinnati, OH 45215 (US). WOLFF, Ann, Margaret; 4570 Boomer Road, Cincinnati, OH 45247 (US).

(74) Agent: REED, T., David; The Procter & Gamble Company, Ivorydale Technical Center, 5299 Spring Grove Avenue, Cincinnati, OH 45217-1087 (US).

(81) Designated States: AT, AT (European patent), AU, BB, BE (European patent), BF (OAPI patent), BG, BJ (OAPI patent), BR, CA, CF (OAPI patent), CG (OAPI patent), CH, CH (European patent), CI (OAPI patent), CM (OAPI patent), CS, DE, DE (European patent), DK, DK (European patent), ES, ES (European patent), DK, FR (European patent), GA (OAPI patent), GB, GB (European patent), GN (OAPI patent), GR, (European patent), HU, IT (European patent), FR, KP, KR, LK, LU, LU (European patent), MC, MG, ML (OAPI patent), MN, MR (OAPI patent), MW, NL, NL (European patent), NO, PL, RO, SD, SE, SE (European patent), SN (OAPI patent), SU\*,TD (OAPI patent), TG (OAPI patent).

Published
With international search report.

(54) Title: POLYHYDROXY FATTY ACID AMIDE SURFACTANTS TO ENHANCE ENZYME PERFORMANCE

 $\begin{array}{cccc}
0 & R^1 \\
& & & \\
& & & \\
R^2 - C - N - 7
\end{array}$ 

## (57) Abstract

Disclosed is an improved detergent composition comprising one or more anionic surfactants, nonionic surfactants, or mixtures thereof, and detersive enzymes, the improvement which comprises incorporating into said composition an enzyme performance-enhancing amount of a polyhydroxy fatty acid amide material of formula (I), wherein  $\mathbb{R}^1$  is  $\mathbb{H}_1$ ,  $\mathbb{C}_1$ - $\mathbb{C}_4$  hydrocarbyl, 2-hydroxy propyl, or a mixture thereof,  $\mathbb{R}_2$  is  $\mathbb{C}_5$ - $\mathbb{C}_{31}$  hydrocarbyl, and Z is a polyhydroxyhydroxarbyl having a linear hydrocarbyl chain with at least three hydroxyls directly connected to said chain, or an alkoxylated derivative thereof.

<sup>+</sup> See back of page